



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,649	02/27/2004	Thomas D. Madden	480208.408D1	7233
500	7590	12/10/2004	EXAMINER	
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC			KISHORE, GOLLAMUDI S	
701 FIFTH AVE			ART UNIT	
SUITE 6300			PAPER NUMBER	
SEATTLE, WA 98104-7092			1615	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,649

Applicant(s)

MADDEN ET AL.

Examiner

Gollamudi S Kishore, Ph.D

Art Unit

1615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9-17-2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claims included in the prosecution are 1-21.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Young (5,023,087) of record.

Young discloses liposomes containing an active agent entrapped within and empty liposomes. The ratios of liposomes containing the active agent to empty liposomes is 0.1-1 to 10-200. The active agents taught by Young are anti-tumor agents such as doxorubicin. According to Young, the administration of such a mixture selectively controls the rate of release of the liposome entrapped active agent (abstract, col. 4, line 40 through col. 6, line 23, col. 10, lines 35-49, col. 15, lines 10-34, Example VIII and claims).

2. Claims 1-6, 14-16 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 91/04019.

WO discloses liposomes containing an active agent entrapped within and empty liposomes. The ratio of liposomes containing the active agent to the empty liposomes is 1:1 to 1:10,000. The active agents taught by WO include interferons and chemotactic peptides. The liposomal lipids taught include sphingomyelin and cholesterol. The ratios of the active agent to lipid fall within

Art Unit: 1615

the claimed amounts. According to WO, the addition of empty liposomes increases the bioavailability of the therapeutic agent (abstract, page 6, line 17 through page 7, line 33, page 8, line 4 through page 9, line 17 and claims, in particular, claims 8, 21, 22, 27, 31 and 33).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young cited above.

The teachings of Young have been discussed above. What are lacking in

Young are the teachings of claimed neoplastic agents.

However, since according to Young the empty liposomes influence the rate of release of the active agent, it would have been obvious to one of ordinary skill in the art with a reasonable expectation of success that any active agent release could be influenced by the empty liposomes irrespective of its nature. Young does not disclose the lipid: drug ratios; however, these are deemed to be obvious parameters manipulated by an artisan to obtain the best possible results.

5. Claims 7-13 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/04019 cited above.

Art Unit: 1615

The teachings of WO have been discussed above. What are lacking in WO are the teachings of claimed neoplastic agents.

However, since according to WO the empty liposomes increases the bioavailability of the active agent, it would have been obvious to one of ordinary skill in the art with a reasonable expectation of success that any active agent's bioavailability will be increased by the empty liposomes irrespective of its nature. WO does not provide any specific examples of liposomes containing sphingomyelin and the ratios of the bilayer-forming lipid to cholesterol also appear to differ from instant ratios. However, it is deemed obvious to one of ordinary skill in the art to use sphingomyelin suggested by WO and vary the ratios of this bilayer-forming lipid to cholesterol to obtain the best possible results.

6. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirpotin (6,110,491) of record in combination with either Young or WO 91/04019 cited above.

Kirpotin discloses liposomal compositions wherein the active agent is in the precipitated form. The active agent according to Kirpotin can be any compound with ionizable groups. The active agents suggested by Kirpotin are antineoplastic agents, doxorubicin, vincristin, vinblastine and others. The liposomes are made of various phospholipids including sphingomyelin; the liposomes contain cholesterol. The lipid drug ratios in Kirpotin also appear to fall within the claimed ratios (abstract; col. 4, line 54 through col. 6, line 18; col. 9, lines 22-67; examples and claims). What are lacking in Kirpotin are the teachings of the inclusion of empty liposomes.

Young as pointed out above, discloses liposomes containing an active agent entrapped within and empty liposomes. The ratios of liposomes containing the active agent to empty liposomes are 0.1-1 to 10-200. The active agents taught by Young are anti-tumor agents such as doxorubicin. According to Young, the administration of such a mixture selectively controls the rate of release of the liposome entrapped active agent (abstract, col. 4, line 40 through col. 6, line 23, col. 10, lines 35-49, col. 15, lines 10-34, Example VIII and claims).

WO as pointed out above, discloses liposomes containing an active agent entrapped within and empty liposomes. The ratio of liposomes containing the active agent to the empty liposomes is 1:1 to 1:10,000. The active agents taught by WO include interferons and chemotactic peptides. The liposomal lipids taught include sphingomyelin and cholesterol. The ratios of the active agent to lipid fall within the claimed amounts. According to WO, the addition of empty liposomes increases the bioavailability of the therapeutic agent (abstract, page 6, line 17 through page 7, line 33, page 8, line 4 through page 9, line 17 and claims, in particular, claims 8, 21, 22, 27, 31 and 33).

The inclusion of empty liposomes in the liposome compositions of Kirpotin would have been obvious to one of ordinary skill in the art since such an inclusion would selectively control the rate of release of the liposome entrapped active agent as taught by Young or empty liposomes increase the bioavailability of the therapeutic agent as taught by WO.

Art Unit: 1615

7. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/13816 of record in combination with either Young or WO 91/04019 cited above.

WO 99 discloses liposomal formulations containing various camptothecins in a precipitated form. According to WO, any phospholipid capable of forming liposomes can be used in preparing liposomes. The liposomes also contain cholesterol. The drug-lipid ratios taught by WO appear to fall within the claimed ratios (abstract, page 8, lines 8 through page 11, line 15; page 12, lines 1-7, Examples 3 and 4 and claims). What are lacking in WO are the teachings of the use of empty liposomes.

The teachings of Young and WO 91 have been discussed above.

The inclusion of empty liposomes in the liposome compositions of WO 99 would have been obvious to one of ordinary skill in the art since such an inclusion would selectively controls the rate of release of the liposome entrapped active agent as taught by Young or empty liposomes increase the bioavailability of the therapeutic agent as taught by WO 91.

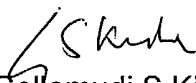
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gollamudi S Kishore, Ph.D whose telephone number is (571) 272-0598. The examiner can normally be reached on 6:30 AM-4 PM, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K Page can be reached on (571) 272-0602.

Art Unit: 1615

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Gollamudi S Kishore, Ph.D
Primary Examiner
Art Unit 1615

GSK